DEVILBISS

SERVICE MANUAL
**DV-AGMD-101599.9**
(Replaces DV-AGMD-101599.8)

# AGMD HIGH PERFORMANCE AUTOMATIC SPRAY GUN

## MODELS:
## 514 CONVENTIONAL AIR ATOMIZATION
## 515 HVLP ATOMIZATION CE

**IMPORTANT: Before using this equipment, carefully read SAFETY PRECAUTIONS, starting on page 1, and all instructions in this manual. Keep this Service Manual for future reference.**

**Service Manual Price: $30.00 (U.S.)**

**NOTE:** This manual was published to supercede Service Manual **DV-AGMD-101599.8** to revision **DV-AGMD-101599.9.** Reasons for this change are noted under “Manual Change Summary” inside the back cover of this manual.

# CONTENTS

| | PAGE |
|---|---|
| **SAFETY:** | **1-3** |
| SAFETY PRECAUTIONS | 1 |
| HAZARDS / SAFEGUARDS | 2-3 |
| **INTRODUCTION:** | **5-6** |
| GENERAL DESCRIPTION | 5 |
| MODELS | 5 |
| SPECIFICATIONS | 5 |
| AGMD HIGH PERFORMANCE AUTOMATIC SPRAY GUN MODEL IDENTIFICATION | 6 |
| **INSTALLATION:** | **7** |
| INSTALLATION | 7 |
| **OPERATION:** | **9** |
| AIR CAP INSTALLATION | 9 |
| AGMD-515 HVLP & LVMP ONLY | 9 |
| BACK PRESSURE - 46C AND 83C | 9 |
| **MAINTENANCE:** | **11** |
| GUN REMOVAL AND INSTALLATION | 11 |
| **PARTS IDENTIFICATION:** | **13-25** |
| AGMD PARTS IDENTIFICATION OVERVIEW | 13 |
| AGMD-514 CONVENTIONAL ATOMIZATION SPRAY GUN PARTS IDENTIFICATION / PARTS LIST | 15-16 |
| AGMD-515 HVLP AND LVMP ATOMIZATION SPRAY GUN PARTS IDENTIFICATION / PARTS LIST | 17-18 |
| AGMD-514 CONVENTIONAL AUTOMATIC GUN & AGMD-515 HVLP AND LVMP AUTOMATIC GUN FLUID TIP, NEEDLE COMBINATIONS, AIR CAP SELECTION & AIR FLOW CHARTS | 19 |
| AGMD-245-1 INTERMEDIATE PLATE ASSEMBLY / PARTS LIST | 20 |
| AGMD-251 MACHINE ADAPTER ASSEMBLY / PARTS LIST | 21 |

**(Continued On Next Page)**

# CONTENTS(Cont.)


| | PAGE |
|---|---|
| **PARTS IDENTIFICATION (Cont.):** | **13-25** |
| AGMD-279-US60 AND AGMD-279-US90 SINGLE HEAD ADAPTER VIEWS / PARTS LIST | 22 |
| AGMD-278-US60 AND AGMD-278-US90 DUAL HEAD ADAPTER VIEWS / PARTS LIST | 23 |
| AGMD-514 AND AGMD-515 RECOMMENDED SPARE PARTS / AIR CAP TEST KITS (OPTIONAL) | 24 |
| ACCESSORIES | 25 |
| **WARRANTY POLICIES:** | **27** |
| LIMITED WARRANTY | 27 |
| **APPENDIX:** | **28-31** |
| PAINT AND SOLVENT SPECIFICATIONS | 28 |
| VISCOSITY CONVERSION CHART | 29-30 |
| VOLUMETRIC CONTENT OF HOSE OR TUBE | 31 |

## NOTES

# SAFETY

## SAFETY PRECAUTIONS

Before operating, maintaining or servicing any ITW Finishing system, read and understand all of the technical and safety literature. This manual contains information that is important for you to know and understand. This information relates to USER SAFETY and PREVENTING EQUIPMENT PROBLEMS. To help you recognize this information, we use the following symbols. Please pay particular attention to these sections.

**A WARNING! states information to alert you to a situation that might cause serious injury if instructions are not followed.**

**A CAUTION! states information that tells how to prevent damage to equipment or how to avoid a situation that might cause minor injury.**

**A NOTE is information relevant to the procedure in progress.**

While this manual lists standard specifications and service procedures, some minor deviations may be found between this literature and your equipment. Differences in local codes and plant requirements, material delivery requirements, etc., make such variations inevitable. Compare this manual with your system installation drawings and appropriate ITW equipment manuals to reconcile such differences.

Careful study and continued use of this manual will provide a better understanding of the equipment and process, resulting in more efficient operation, longer trouble-free service and faster, easier troubleshooting. If you do not have the manuals and safety literature for your DeVilbiss system, contact your local ITW Industrial representative or ITW Automotive Finishing Group.

**⚠ WARNING**

► The user **MUST** read and be familiar with the Safety Section in this manual and the ITW DeVilbiss safety literature therein identified.

► This manual **MUST** be read and thoroughly understood by **ALL** personnel who operate, clean or maintain this equipment! Special care should be taken to ensure that the **WARNINGS** and safety requirements for operating and servicing the equipment are followed. The user should be aware of and adhere to **ALL** local building and fire codes and ordinances as well as **NFPA-33 SAFETY STANDARD** prior to installing, operating, and/or servicing this equipment.

**⚠ WARNING**

► The hazards shown on the following page may occur during the normal use of this equipment. Please read the hazard chart beginning on page 2.

| **AREA**<br>Tells where hazards may occur. | **HAZARD**<br>Tells what the hazard is. | **SAFEGUARDS**<br>Tells how to avoid the hazard. |
|---|---|---|
| **Spray Area**<br> | Fire Hazard<br><br>Improper or inadequate operation and maintenance procedures will cause a fire hazard. | Fire extinguishing equipment must be present in the spray area and tested periodically.<br><br>Spray areas must be kept clean to prevent the accumulation of combustible residues.<br><br>Smoking must never be allowed in the spray area.<br><br>When using solvents for cleaning:<br><br>Those used for equipment flushing should have flash points equal to or higher than those of the coating material.<br><br>Those used for general cleaning must have flash points above 100°F (37.8°C).<br><br>Spray booth ventilation must be kept at the rates required by NFPA-33, OSHA, and local codes. In addition, ventilation must be maintained during cleaning operations using flammable or combustible solvents.<br><br>The paint process and equipment should be set up and operated in accordance with NFPA -33, NEC, and OSHA requirements. |
| **General Use and Maintenance**<br> | Improper operation or maintenance may create a hazard.<br><br>Personnel must be properly trained in the use of this equipment. | Personnel must be given training in accordance with the requirements of NFPA-33.<br><br>Instructions and safety precautions must be read and understood prior to using this equipment.<br><br>Comply with appropriate local, state, and national codes governing ventilation, fire protection, operation maintenance, and housekeeping. Reference OSHA, NFPA-33, and your insurance company requirements. |

| **AREA**<br>Tells where hazards may occur. | **HAZARD**<br>Tells what the hazard is. | **SAFEGUARDS**<br>Tells how to avoid the hazard. |
|---|---|---|
| **Explosion Hazard/ Incompatible Materials**<br> | Halogenated hydrocarbon solvents for example: methylene chloride and 1,1,1,-Trichloroethane are not chemically compatible with the aluminum that might be used in many system components. The chemical reaction caused by these solvents reacting with aluminum can become violent and lead to an equipment explosion. | Aluminum is widely used in other spray application equipment - such as material pumps, regulators, triggering valves, etc. Halogenated hydrocarbon solvents must never be used with aluminum equipment during spraying, flushing, or cleaning. Read the label or data sheet for the material you intend to spray. If in doubt as to whether or not a coating or cleaning material is compatible, contact your material supplier. Any other type of solvent may be used with aluminum equipment. |
| **Toxic Substances**<br> | Certain material may be harmful if inhaled, or if there is contact with the skin. | Follow the requirements of the Material Safety Data Sheet supplied by coating material manufacturer.<br><br>Adequate exhaust must be provided to keep the air free of accumulations of toxic materials.<br><br>Use a mask or respirator whenever there is a chance of inhaling sprayed materials. The mask must be compatible with the material being sprayed and its concentration. Equipment must be as prescribed by an industrial hygienist or safety expert, and be NIOSH approved. |

## NOTES

# INTRODUCTION

## GENERAL DESCRIPTION

The ***AGMD High Performance Automatic Spray Gun*** is suitable for use with solvent base and waterborne materials.

When using this gun with highly corrosive or highly abrasive materials it must be expected that the necessity for replacement of parts will be increased. If there is any doubt about the suitability of the gun for a particular material ask the paint manufacturer.

The AGMD automatic spray gun will be mounted to the gun mover by means of an intermediate plate and an adapter. The patented locking device on the intermediate plate provides a simple and quick change without tools (example: for servicing purposes). The installation with the quick locking device provides precise repositioning.

The air cap can be installed with indexing of 90°.

## MODELS

***AGMD-514:*** Automatic gun for conventional air atomization, including air cap indexing.

***AGMD-515:*** Automatic gun for "HVLP" and "LVMP" atomization, including air cap indexing.

Specify air cap and fluid tip combinations when ordering (see "Table 1a and 1b" in the "Parts Identification" section).

## SPECIFICATIONS

### Mechanical / Physical

| | |
|---|---|
| **Weight:** | 1.33 lbs. (603 g) |
| **Dimensions:** | (See Figure 1) |
| **Max. Pressure:** | 130 psi (9 bar) (Atomizing Air (ATOM) & Fan Air (FAN)) 200 psi (14 bar) (Material (MAT)) 100 psi (7 bar) (Cylinder Air (CYL)) |
| **Spray Head:** | 300 Grade Stainless Steel |
| **Fluid Tip:** | |
| ***(Standard)*** | 300 Grade Stainless Steel |
| **Fluid Needle:** | |
| ***(Standard)*** | 300 Grade Stainless Steel |
| **Material Contacting Seals:** | |
| ***(Standard):*** | Viton (Waterborne Materials) |
| ***(Optional):*** | Kalrez (Solvent Base Materials) |

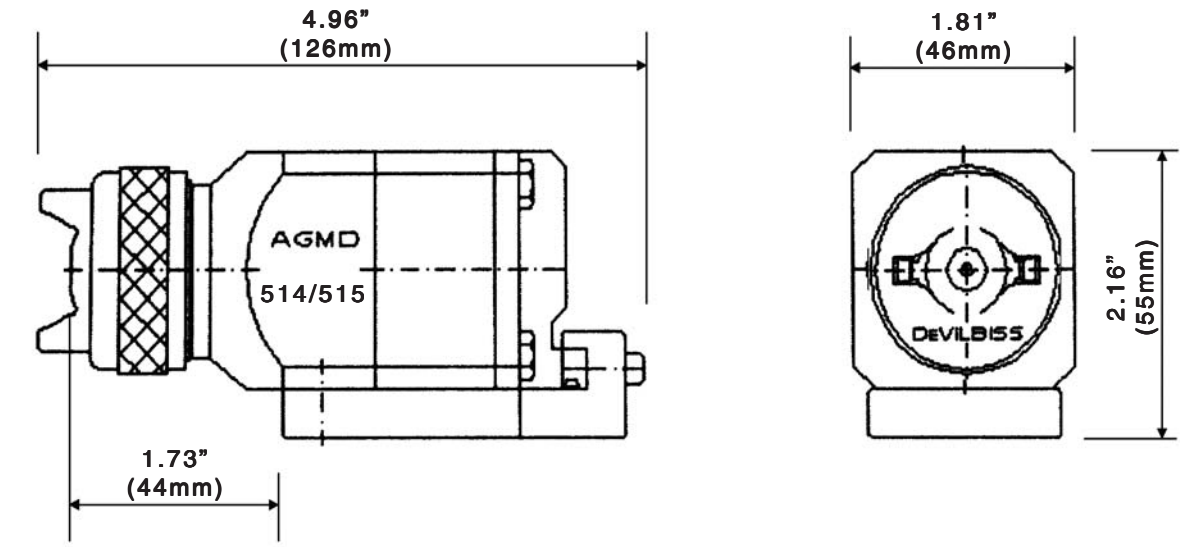



**Figure 1: AGMD-514/515 Dimensions (With AGMD-245-1 Intermediate Plate)**

# AGMD HIGH PERFORMANCE AUTOMATIC SPRAY GUN MODEL IDENTIFICATION *

When ordering, use AGMD-514 U, FF, or 797C as indicated. Three digits must follow the basic part number, for example:

**AGMD - 514 U 797C FF**

Gun Model/
Type/Series

With Circulation = U

Without Circulation = Without U

Tip Size (e.g. FF = .055)

Air Cap (see "Table 1a and 1b)

# INSTALLATION

1. Firmly screw intermediate plate to adapter and screw adapter to gun mover (robot / reciprocator).

2. Connect compressed air hose and fluid hose machined adapter.

| | |
|---|---|
| **CYL Air:** | 1/8” ID (3.2mm) min.<br>75 psi min. |
| **FAN Air:**<br>*(Conventional &* HVLP)<br>*Hose lengths up to 15’ (457m)* | 1/4” ID (6.3mm) min.<br>. |
| **ATOM Air:**<br>*(Conventional & HVLP)*<br>*Hose lengths up to 15’ (457m)* | 1/4” ID min. |
| **Fluid:** | 1/8” ID (3.2mm) min. |

## NOTES

# OPERATION

Connect compressed air and fluid supply to suitable pressure regulator. For consistent operation the air pressure should be regulated and be free from oil mist and water condensate. When securing the gun to the intermediate plate care must be taken that all o-rings are in place. Lightly apply a small amount of petroleum jelly to the o-ring surfaces.

## AIR CAP INSTALLATION
### (Refer to Figure 2)

1. The air cap positioning depends upon the baffle position. Fit the baffle first on the gun body as shown in Figure 2.

- ➤ Position 1: Horizontal Pattern
- ➤ Position 2: Vertical Pattern

2. Tighten the tip to maintain the baffle in position.

3. Place the air cap by using the two indexes on the baffle.

4. Fix the air cap by screwing the retaining ring.

## AGMD-515 HVLP AND LVMP ONLY

All models are designed to provide maximum transfer efficiency by limiting air cap pressure to 10 psi (0.7 bar) (in the U.S., this complies with rules issued by SCAQMD and other air qulity authorities). Air cap pressure can be measured with an optional air cap test kit. (See "Spare Parts " in the "Parts Identification" section.)

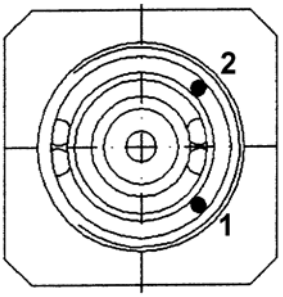



**Figure 2: Indexing Pin Locations**

**NOTE**

➤ For HVLP operation (max. 10 psi, -0.7 bar cap pressure), **DO NOT** exceed the air inlet pressure given as follows:

| PSI (bar) | CAP # |
|---|---|
| 25 (1.7) | 46C |
| 25 (1.7) | 83C |
| 22 (1.5) | 122C |

## BACK PRESSURE - 46C AND 83C

Due to the unique cone shape of the MP fluid tips (nozzle), a slight back pressure is created against the fluid column. This will reduce the amount of fluid output. To compensate, increase the fluid regulator pressure slightly if necessary. With 10 psi (0.7 bar) cap pressure, back pressures are approximately 3.5 psi (0.24 bar) with the 46C.

## NOTES

# MAINTENANCE

## GUN REMOVAL AND INSTALLATION

1. Relieve system pressure.

2. Press unlocking pin, turn gun by 45° and lift it off the intermediate plate.

3. When installing gun, check o-rings and replace if necessary. Check for clean surface and holes. Lubricate o-rings and AGMD-245-1 intermediate plate with food grade petroleum jelly before installation.

**NOTES**

## NOTES

# PARTS IDENTIFICATION

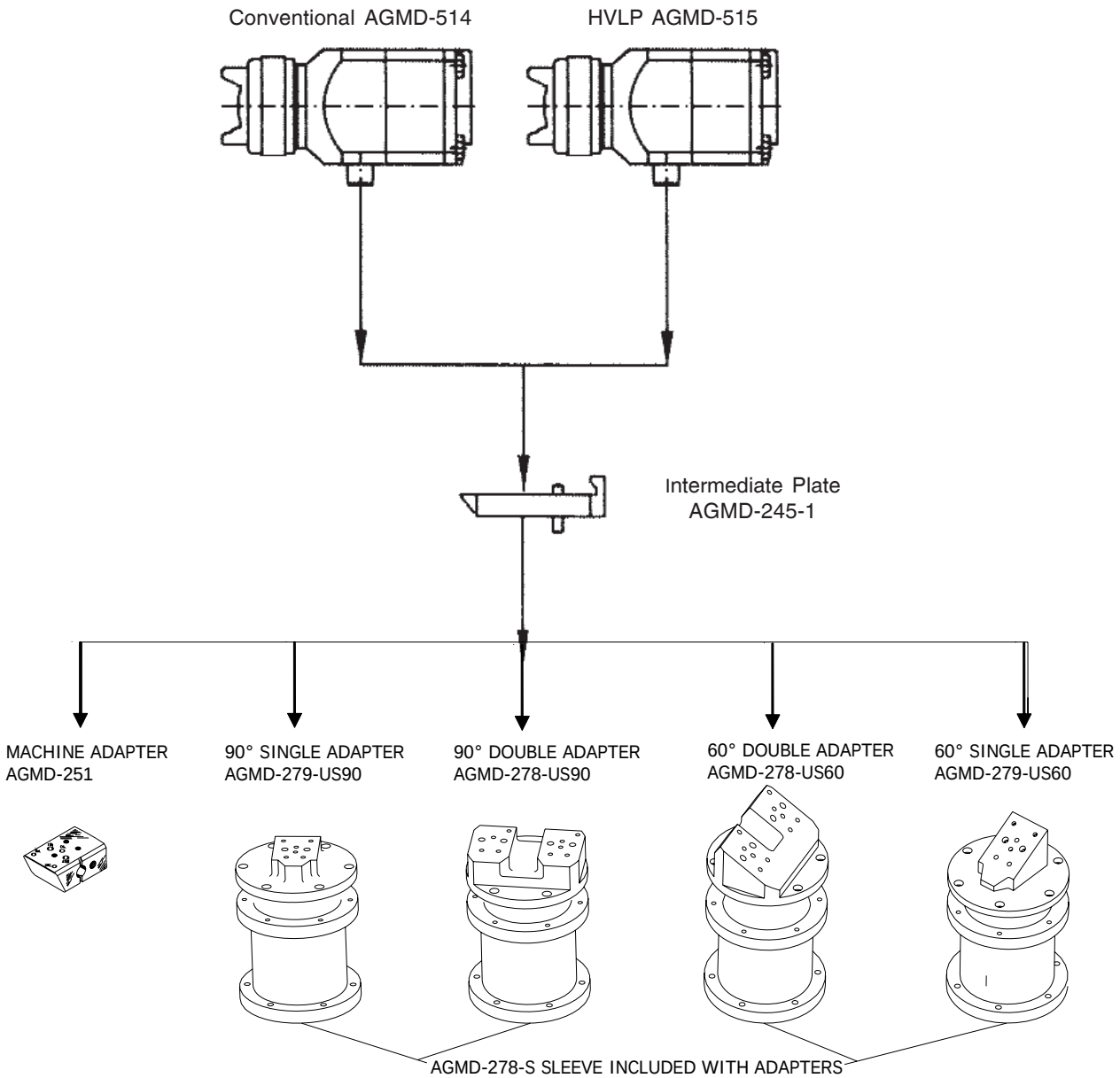



**Figure 3: AGMD Parts Identification Overview**

## NOTES

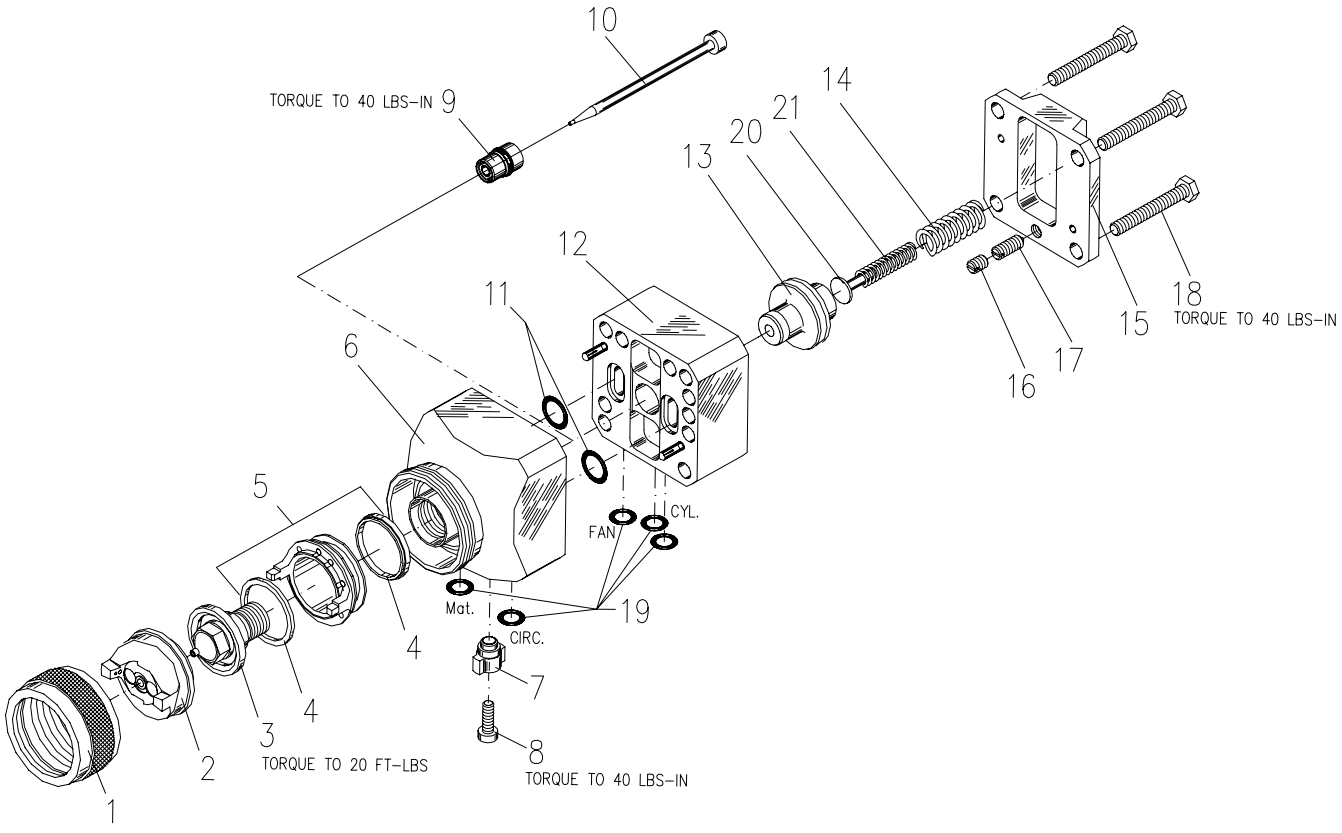



**Figure 4: AGMD-514 Conventional Atomization Spray Gun Parts Identification**

## AGMD-514 CONVENTIONAL ATOMIZATION SPRAY GUN PARTS LIST - (Figure 4)

| Item # | Description | Part # |
|---|---|---|
| 1 | Retaining Ring | MBC-368 |
| 2 | Air Cap | **See Table 1a** |
| 3 | Fluid Tip (1/2" Hex) | **See Table 1a** |
| 4 | Gasket (2 Required) | AGMD-65-1 |
| 5 | Baffle Assembly (Includes two (2) AGMD-65-1 Gaskets) | AGMD-33 |
| 6 | Spray Head | AGMD-195 |
| 7 | Locking Device | AGMD-244-1 |
| 8 | Screw, Socket Head Cap (4mm Hex) | AGMD-130 |
| 9 | Needle Packing Assembly (6mm Hex) | AGMD-405-1 |
| 10 | Fluid Needle | **See Table 1a** |
| 11 | O-Ring (Two (2) Required) | 7554-09 |
| 12 | Gun Body | AGMD-217 |
| 13 | Piston | AGMD-243-1 |
| 14 | Spring | AGMD-111 |
| 15 | Plate, Rear | AGMD-242 |
| 16 | Screw, Set with Slot | AGMD-116 |
| 17 | Screw, Spring Plunger | AGMD-115 |
| 18 | Screw (4 Required), Hex Head Machined (5mm Hex) | AGMD-131 |
| 19 | O-Ring (5 Required), Standard Waterborne Materials | AGMD-119 |
| | O-Ring (5 Required), Optional, Solventborne Materials | 79001-27 |
| 20 | Pad, Spring | AGMD-219 |
| 21 | Pressure Spring | AGMD-110 |

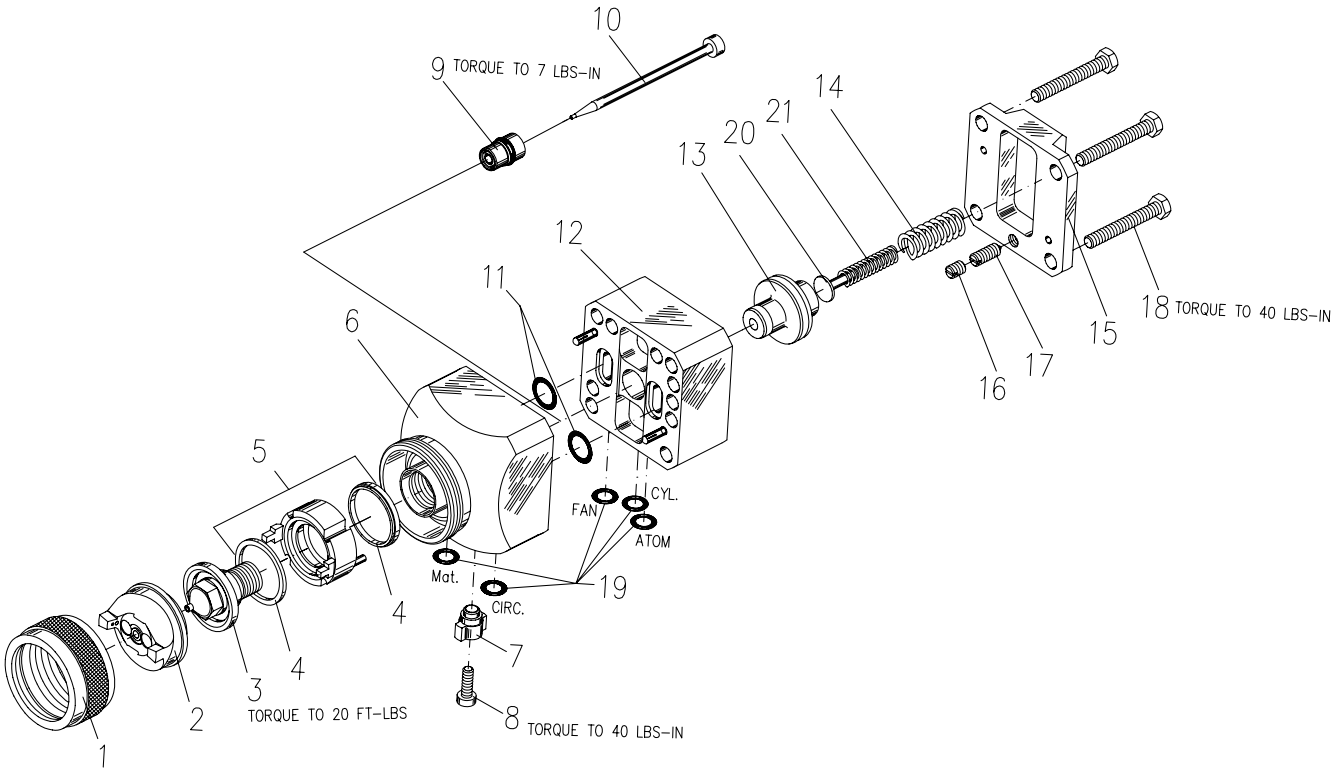



**Figure 5: AGMD-515 HVLP & LVMP Atomization Spray Gun Parts Identification**

## AGMD-515 HVLP AND LVMP ATOMIZATION SPRAY GUN PARTS LIST - (Figure 5)

| Item # | Description | Part # |
|---|---|---|
| 1 | Retaining Ring | MBC-368 |
| 2 | Air Cap | **See Table 1b** |
| 3 | Fluid Tip (1/2" Hex) | **See Table 1b** |
| 4 | Gasket (2 Required) | AGMD-65-1 |
| 5 | Baffle Assembly (Includes two (2) AGMD-65-1 Gaskets) | AGMD-34 |
| 6 | Spray Head | AGMD-195 |
| 7 | Locking Device | AGMD-244-1 |
| 8 | Screw, Socket Head Cap (4mm Hex) | AGMD-130 |
| 9 | Needle Packing Assembly (6mm Hex) | AGMD-405-1 |
| 10 | Fluid Needle | **See Table 1b** |
| 11 | O-Ring (2 Required) | 7554-09 |
| 12 | Gun Body | AGMD-217 |
| 13 | Piston | AGMD-243-1 |
| 14 | Spring | AGMD-111 |
| 15 | Plate, Rear | AGMD-242 |
| 16 | Screw, Set with Slot | AGMD-116 |
| 17 | Screw, Spring Plunger | AGMD-115 |
| 18 | Screw (4 Required), Hex Head Machined (5mm Hex) | AGMD-131 |
| 19 | O-Ring (5 Required), Standard Waterborne Materials | AGMD-119 |
| | O-Ring (5 Required), Optional, Solventborne Materials | 79001-27 |
| 20 | Pad, Spring | AGMD-219 |
| 21 | Pressure Spring | AGMD-110 |

## AGMD-514 CONVENTIONAL AUTOMATIC GUN - *Fluid Tip and Needle Combinations, Air Cap Selection, and Air Flow*

| Air Cap | | Fluid Tip & Needle‡ AGMD-4000-XX ø in. | Viscosity ZAHN #2 (seconds) | Flow Rate CC/min. | Fan Width Inch @ 10" Target |
|---|---|---|---|---|---|
| Part #† | Air Flow CFM @ psi Inlet Pressure | | | | |
| AV-1239-765C | 22 @ 80 | FX / .042 | Up to 26 | Up to 600 | 15" |
| AV-1239-765C | 22 @ 80 | FX / .055 | Up to 28 | Up to 900 | 15" |
| AV-1239-765C | 22 @ 80 | E / .070 | 28+ | Up to 1000 | 15" |
| AV-1239-797C | 21 @ 70 | FX / .042 | Up to 26 | Up to 600 | 17" |
| AV-1239-797C | 21 @ 70 | FF / .055 | Up to 28 | Up to 900 | 17" |
| AV-1239-797C | 21 @ 70 | E / .070 | 28+ | Up to 1000 | 17" |

† Certified air caps marked with "C"
‡ Made of High Grade 303 Stainless Steel

**Table 1a: AGMD-514 Conventional Automatic Gun Fluid Tip and Needle Combinations**

## AGMD-515 HVLP AND LVMP AUTOMATIC GUN - *Fluid Tip and Needle Combinations, Air Cap Selection, and Air Flow*

| Air Cap | | Fluid Tip & Needle‡ AGMD-4600-XX ø in. | Viscosity ZAHN #2 (seconds) | Flow Rate CC/min. | Fan Width Inch @ 10" Target |
|---|---|---|---|---|---|
| Part #† | Air Flow CFM @ psi Inlet Pressure | | | | |
| †AGMD-46C | 26.5 @ 70 | FX / .042 | Up to 26 | Up to 200 | 11" |
| †AGMD-46C | 26.5 @ 70 | FX / .055 | Up to 30 | Up to 300 | 11" |
| †AGMD-122C | 9.5 @ 22 | FX / .042 | Up to 26 | Up to 200 | 10" |
| †AGMD-122C | 9.5 @ 22 | FF / .055 | Up to 30 | Up to 300 | 10" |
| AGMD-83 | 28.5 @ 70 | E / .070 | Up to 34 | Up to 450 | 12" |

† Certified air caps marked with "C"
‡ Made of High Grade 303 Stainless Steel

**Table 1b: AGMD-515 HVLP & LVMP Fluid Tip and Needle Combinations**

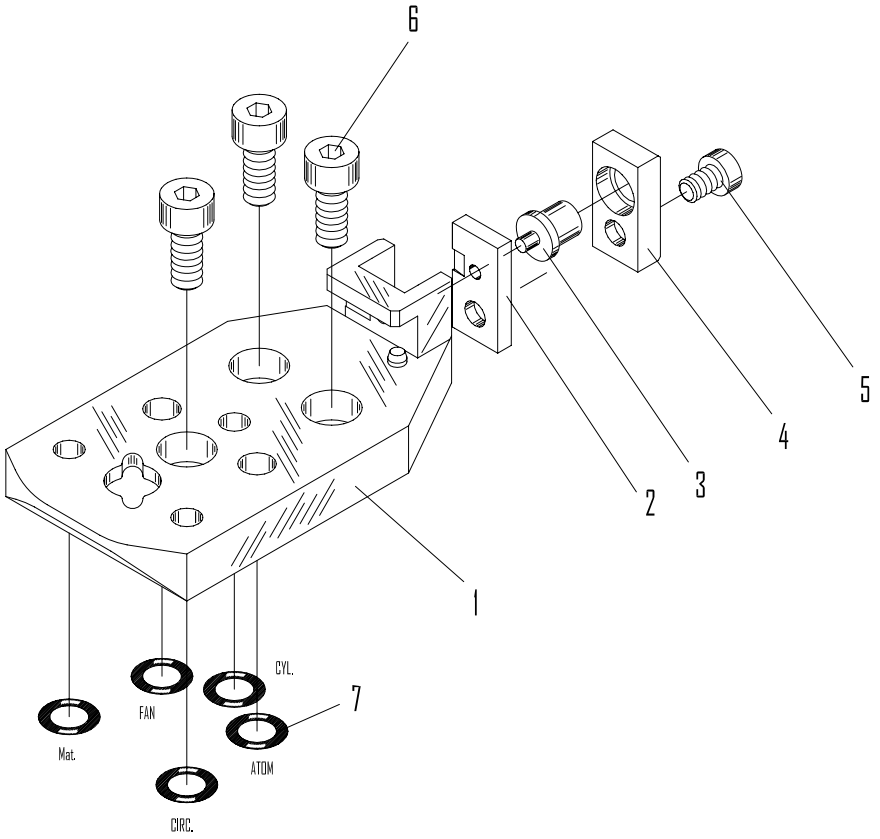



**Figure 7: AGMD-245-1 Intermediate Plate Assembly Parts Identification**

## *AGMD-245-1 INTERMEDIATE PLATE ASSEMBLY PARTS LIST - (Figure 7)*

| Item # | Description | Part # |
|---|---|---|
| 1 | Intermediate Plate | AGMD-147-1 |
| 2 | Wear Plate | AGMD-346 |
| 3 | Pressure Piece | AGMD-247 |
| 4 | Plate | AGMD-246 |
| 5 | Screw, Socket Pan Head Machined | AGMD-130 |
| 6 | Screw, (3 Required), Socket Head Cap | AGMD-142 |
| 7 | O-Ring, (5 Required), Waterborne | AGMD-119 |
| | O-Ring, (5 Required), Solventborne Materials | 79001-27 |

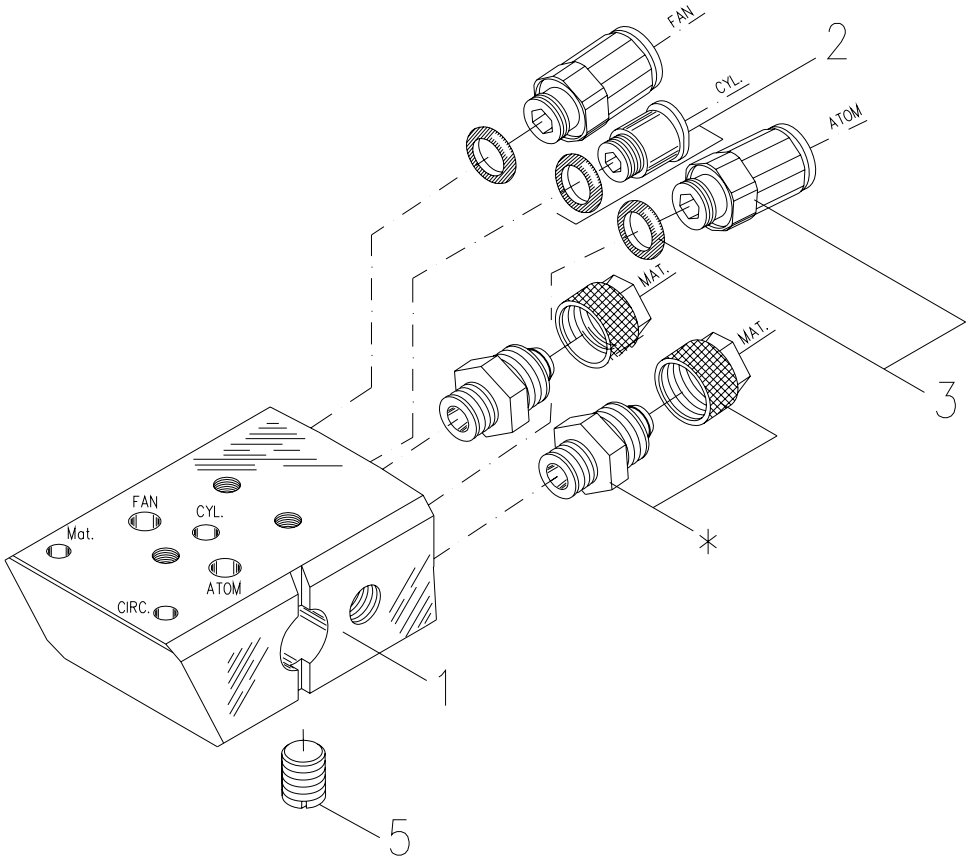



**Figure 8: AGMD-251 Machine Adapter Assembly Parts Identification**

## *AGMD-251 MACHINE ADAPTER ASSEMBLY PARTS LIST - (Figure 8)*

| Item # | Description | Part # | Qty. |
|---|---|---|---|
| 1 | Adapter | AGMD-151a | 1 |
| 2 | Connector Assembly, Push-In Tubing, 6mm OD | AGMD-126 | 1 |
| 3 | Connector Assembly, Push-In Tubing, 5/16” OD | AGMD-127 | 2 |
| 5 | Screw, Set | AGMD-117 | 1 |

* ZZ-2663 - Fluid Connector Assembly, Push-In Tubing, 5/16" OD X .040 Wall (2) are not included with kit. May be purchased separately. Contact your ITW Finishing representative or customer service.

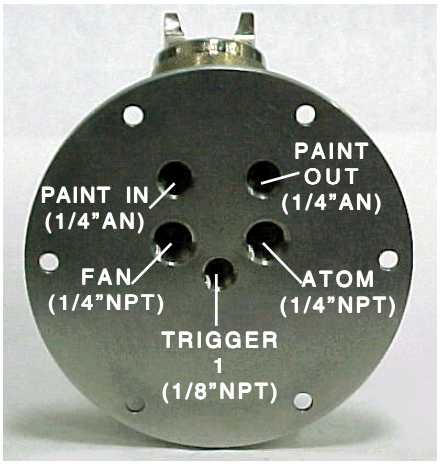



Figure 9a: Single Head Adapter Robot (Bottom View)

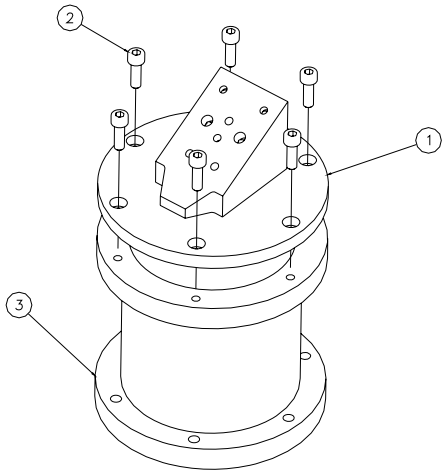



Figure 9b: AGMD-279-US60 Single Head Adapter Parts Identification (Top View)

## AGMD-279-US60 SINGLE HEAD ADAPTER FOR ROBOT PARTS LIST - (Figures 9a & 9b)

| Item # | Description | Part # |
|---|---|---|
| 1 | Adapter - 60° Face Angle | AGMD-279-US60 |
| 2 | Screw, (6 Required), Socket Head Cap | AGMD-142 |
| 3 | Sleeve (Included with adapter) | AGMD-278-S |

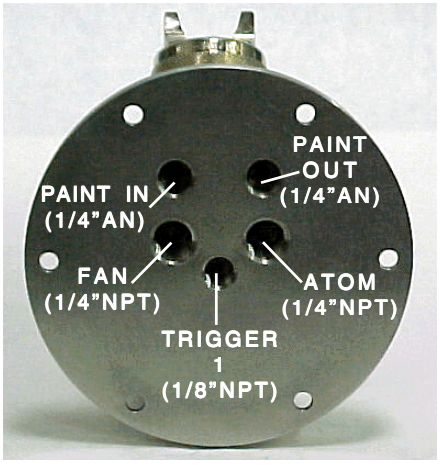



Figure 10a: Single Head Robot Adapter (Bottom View)

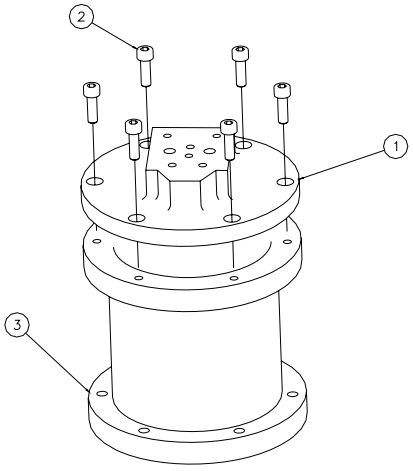



Figure 10b: AGMD-279-US90 Single Head Adapter Parts Identification (Top View)

## AGMD-279-US90 SINGLE HEAD ADAPTER FOR ROBOT PARTS LIST - (Figures 10a & 10b)

| Item # | Description | Part # |
|---|---|---|
| 1 | Adapter - 90° Face Angle | AGMD-279-US90 |
| 2 | Screw, (6 Required), Socket Head Cap | AGMD-142 |
| 3 | Sleeve (Included with adapter) | AGMD-278-S |

**Figure 11a: Dual Head Adapter Robot (Bottom View)**

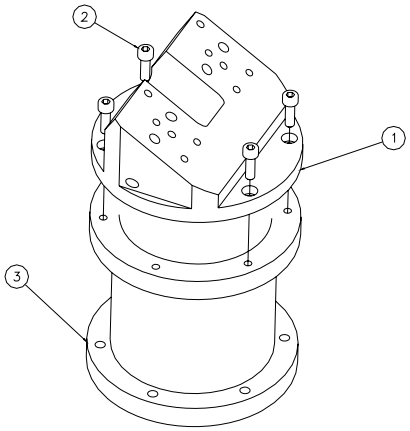



**Figure 11b: AGMD-278-US60 Dual Head Adapter Parts Identification (Top View)**

## *AGMD-278-US60 DUAL HEAD ADAPTER FOR ROBOT PARTS LIST - (Figures 11a & 11b)*

| Item # | Description | Part # |
|---|---|---|
| 1 | Adapter - 60° Face Angle | AGMD-278-US60 |
| 2 | Screw (4 Required), Socket Head Cap | AGMD-142 |
| 3 | Sleeve (Included with adapter) | AGMD-278-S |

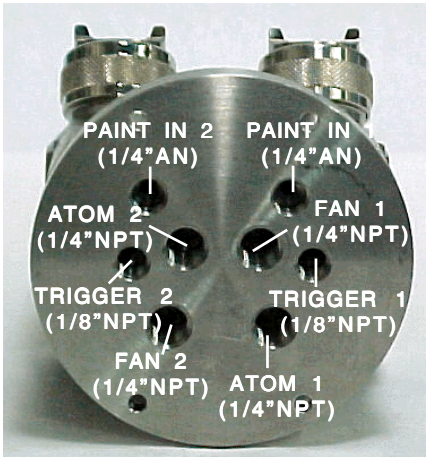



**Figure 12a: Dual Head Adapter Robot (Bottom View)**

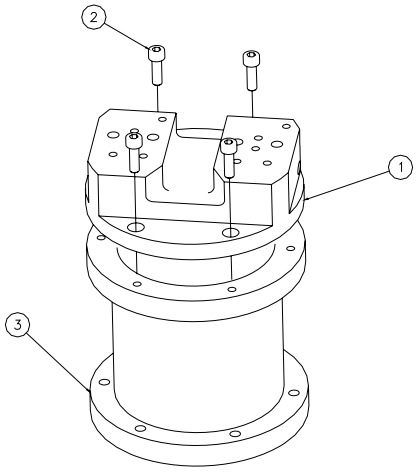



**Figure 12b: AGMD-278-US90 Dual Head Adapter Parts Identification (Top View)**

## *AGMD-278-US90 DUAL HEAD ADAPTER FOR ROBOT PARTS LIST - (Figures 12a & 12b)*

| Item # | Description | Part # |
|---|---|---|
| 1 | Adapter - 90° Face Angle | AGMD-278-US90 |
| 2 | Screw (4 Required), Socket Head Cap | AGMD-142 |
| 3 | Sleeve (Included with adapter) | AGMD-278-S |

## AGMD-514 AND AGMD-515 RECOMMENDED SPARE PARTS

| Part # | Description | Number of Guns 1-5 | 5-10 | 10-15 | 15+ | Notes |
|---|---|---|---|---|---|---|
| AGMD-110 | Pressure Spring | 1 | 1 | 2 | 3 | |
| AGMD-111 | Pressure Spring | 1 | 1 | 2 | 3 | |
| AGMD-65-1 | Fluid Tip Gasket | 4 | 6 | 8 | 10 | |
| AGMD-244-1 | Locking Device | 1 | 2 | 3 | 4 | |
| AGMD-130 | Cap Screw | 1 | 2 | 3 | 4 | |
| AGMD-405-1 | Needle Packing | 2 | 3 | 4 | 5 | |
| 7554-09 | O-Ring | 1 | 2 | 3 | 4 | |
| AGMD-243-1 | Piston Assembly | 1 | 2 | 3 | 4 | |
| 79001-27 | O-Ring, Solvent Proof, Kalrez (Optional) | 5 | 10 | 15 | 20 | For use with solventborne materials. |
| AGMD-119 | O-Ring, Viton (Standard) | 5 | 10 | 15 | 20 | For use with waterborne paints. |
| MBC-368 | Retaining Ring | 1 | 2 | 3 | 4 | |

## AGMD-514 RECOMMENDED SPARE PARTS

| Part # | Description | Number of Guns 1-5 | 5-10 | 10-15 | 15+ | Notes |
|---|---|---|---|---|---|---|
| AGMD-33 | Baffle Assembly | 1 | 1 | 2 | 2 | |
| AGMD-4000-XX | Fluid Tip & Needle Combination | 2 | 3 | 4 | 4 | Replace XX with FX for .042, FF for .055, or E for .070 |
| AV-1239-XXXC | Air Cap | 2 | 3 | 4 | 5 | Replace XXX with 765 or 797. |

## AGMD-515 RECOMMENDED SPARE PARTS

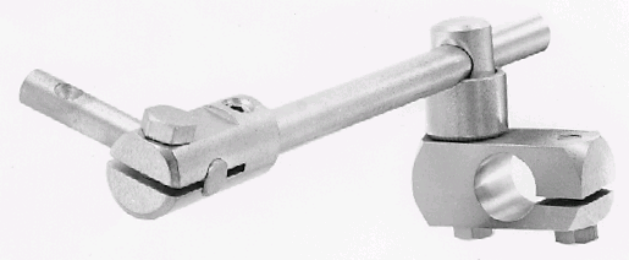
| Part # | Description | Number of Guns 1-5 | 5-10 | 10-15 | 15+ | Notes |
|---|---|---|---|---|---|---|
| AGMD-34 | Baffle Assembly | 1 | 1 | 2 | 2 | |
| AGMD-4600-XX | Fluid Tip & Needle Combination | 2 | 3 | 4 | 5 | Replace XX with FX for .042; FF for .055 and E for .070. |
| AGMD-XXXX | Air Cap | 2 | 3 | 4 | 5 | Replace XXX with 46, 122 or 83. |

## AGMD-514 AND 515 AIR CAP TEST KITS (OPTIONAL)

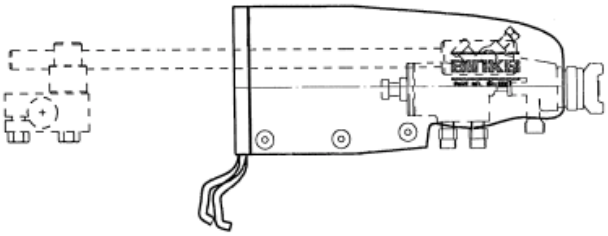
| Part # | Description | Number of Guns 1-5 | 5-10 | 10-15 | 15+ | Notes |
|---|---|---|---|---|---|---|
| 78293-01 | Air Cap Test Kit | 1 | 1 | 1 | 1 | For 46C Cap |
| 74035-18 | Air Cap Calibrator Kit | 1 | 1 | 1 | 1 | For 765C Cap |
| 74035-19 | Air Cap Calibrator Kit | 1 | 1 | 1 | 1 | For 797C Cap |
| 74035-20 | Air Cap Calibrator Kit | 1 | 1 | 1 | 1 | For 122C Cap |
| 78293-02 | Air Cap Test Kit | 1 | 1 | 1 | 1 | For 83 Cap |

## ACCESSORIES (INDUSTRIAL)

| Part # | Description |
|---|---|
| 54-380 | Gun Mounting Bar Bracket. (For reciprocator or fixed rod mounting) (Binks) |
| 54-3691 | Gun Cover (Package of 20) |



**Gun Mounting Bar Bracket**



**Gun Cover**

## NOTES

# WARRANTY POLICIES

## LIMITED ONE (1) YEAR WARRANTY FOR COATING EQUIPMENT PRODUCTS

All merchandise manufactured by ITW DeVilbiss is warranted to be free of defects in workmanship and material. The terms of the warranty, except as hereinafter provided, extend for a period of one (1) year from date of first purchase at retail by user excluding equipment failures which are the result of misapplication, misues, incorrect maintenance, or normal wear. If after inspection by us, defect is confirmed, we will at our option repair, replace, or issue credit, minus allowance for usage received.

Merchandise of a size suitable for shipping will be sent to a point designated by DeVilbiss at purchaser's expense; larger or fixed merchandise will be inspected at the site. If claimed defect is reported to DeVilbiss within the 1 year from date of purchase, and if the merchandise is actaully defective, DeVilbiss will provide all necessary replacement parts.

**There is no other express warranty. Implied warranties, including those of merchantability and fitness for a particular purpose, are limited to one year from purchase and to the extent permitted by law any and all implied warranties are excluded. This is the exclusive remedy and liability for consequential damages under any and all warranties are excluded to the extent exclusion is permitted by law. Some states do not allow limitations on how long an implied warranty lasts, or the limitation or exclusion of consequential or incidental damages, so the above limitation or exclusion may not apply to you.**

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

This Warranty Does **NOT** Cover:

A. Merchandise that has become inoperative because of ordinary wear, misuse, negligence, accident, or improper and unauthorized repair or alteration.

B. Costs occassioned by removal, replacement, or repair of merchandise (other than by DeVilbiss), without **previous** written authorization.

C. Merchandise sold by us which has been manufactured by and identified as the product of another company.

D. Repair costs of merchandise determined not to be defective.

### Warranty Instructions

In the event of malfunction, first ensure that the equipment is the correct equipment to do the job required, is properly installed and adjusted, and is correctly maintained and operated. Then, if a claim is made that DeVilbiss equipment or a part there of does not operate properly, contact (1) Your DeVilbiss Authorized Sales Outlet through which the equipment was purchased, or (2) consult your local directory for the phone number of the DeVilbiss distributor nearest to you.

### General

All decisions of DeVilbiss with regard to this policy shall be final. DeVilbiss will not be responsible for any material returned claimed defective other than in accord with this statement of policy.

# APPENDIX

## PAINT AND SOLVENT SPECIFICATIONS

| | REA™ VECTOR™ EFM™ Evolver™ | REM™ / M90™ | NO. 2 HAND GUN | TURBODISK™ | AEROBELL® II*** AEROBELL® AEROBELL® 33 RMA-101™ |
|---|---|---|---|---|---|
| RECOMMENDED VISCOSITY USING A ZAHN NO. 2 | 18 TO 30 SEC | 18 TO 30 SEC | 20 TO 60 SEC | 20 TO 60 SEC | 20 TO 60 SEC |
| PAINT ELECTRICAL RESISTANCE** | .1 MΩ TO ∞ | .1 MΩ TO ∞ | .1 TO 1 MΩ | .1 MΩ TO ∞ | .1 MΩ TO ∞ |
| RECOMMENDED DELIVERY (UP TO) | 1000 cc/min | 1500 cc/min | 180 cc/min | 1000 cc/min | 500 cc/min |

## *GUIDE TO USABLE SOLVENT SELECTION*

| Chemical Name | Common Name | Category | Flash Point†† (TCC) | *CAS Number | Evap. Rate† | Elec. Res.** |
|---|---|---|---|---|---|---|
| DICHLOROMETHANE | Methylene Chloride | Chlorinated Solvents | | 75-09-2 | **14.5** | HIGH |
| VM & P NAPHTHA | Naptha | Aliphatic Hydrocarbons | 65°F | 8030-30-6 | **10** | HIGH |
| ACETONE | | Ketones | -18°F | 67-64-1 | **5.6** | LOW |
| METHYL ACETATE | | Esters | 90°F | 79-20-9 | **5.3** | LOW |
| BENZENE | | Aromatic Hydrocarbons | 12°F | 71-43-2 | **5.1** | HIGH |
| ETHYL ACETATE | | Esters | 24°F | 141-78-6 | **3.9** | MEDIUM |
| 2-BUTANONE | MEK | Ketones | 16°F | 78-93-3 | **3.8** | MEDIUM |
| ISO-PROPYL ACETATE | | Esters | 35°F | 108-21-4 | **3.4** | LOW |
| ISOPROPYL ALCOHOL | IPA | Alcohols | 53°F | 67-63-0 | **2.5** | LOW |
| 2-PENTANONE | MPK | Ketones | 104°F | 107-87-9 | **2.5** | MEDIUM |
| METHANOL | Methyl Alcohol | Alcohols | 50°F | 67-56-1 | **2.1** | LOW |
| PROPYL ACETATE | n-Propyl Acetate | Esters | 55°F | 109-60-4 | **2.1** | LOW |
| TOLUOL | Toluene | Aromatic Hydrocarbons | 48°F | 108-88-3 | **1.9** | HIGH |
| METHYL ISOBUTYL KETONE | MIBK | Ketones | 60°F | 108-10-1 | **1.6** | MEDIUM |
| ISOBUTYL ACETATE | | Esters | 69°F | 110-19-0 | **1.5** | LOW |
| ETHANOL | Ethyl Alcohol | Alcohols | | 64-17-5 | **1.4** | LOW |
| ***BUTYL ACETATE*** | | ***Esters*** | **78°F** | ***123-86-4*** | ***1.0*** | ***LOW*** |
| ETHYLBENZENE | | Aromatic Hydrocarbons | 64°F | 100-41-4 | **.89** | HIGH |
| 1-PROPANOL | n-Propyl Alcohol | Alcohols | 74°F | 71-23-8 | **.86** | LOW |
| 2-BUTANOL | sec.-Butyl Alcohol | Alcohols | 72°F | 78-92-2 | **.81** | LOW |
| XYLOL | Xylene | Aromatic Hydrocarbons | 79°F | 1330-02-07 | **.80** | HIGH |
| AMYL ACETATE | | Esters | 106°F | 628-63-7 | **.67** | MEDIUM |
| 2-METHYLPROPANOL | iso-Butyl Alcohol | Alcohols | 82°F | 78-83-1 | **.62** | LOW |
| METHYL AMYL ACETATE | | Esters | 96°F | 108-84-9 | **.50** | LOW |
| 5-METHYL-2-HEXANONE | MIAK | Ketones | 96°F | 110-12-3 | **.50** | MEDIUM |
| 1-BUTANOL | n-Butyl Alcohol | Alcohols | 95°F | 71-36-3 | **.43** | LOW |
| 2-ETHOXYETHANOL | | Glycol Ethers | 164°F | 110-80-5 | **.38** | LOW |
| 2-HEPTANONE | MAK | Ketones | 102°F | 110-43-0 | **.40** | MEDIUM |
| CYCLOHEXANONE | | Ketones | 111°F | 108-94-1 | **.29** | MEDIUM |
| AROMATIC-100 | SC#100 | Aromatic Hydrocarbons | 111°F | | **.20** | HIGH |
| DIISOBUTYL KETONE | DIBK | Ketones | 120°F | 108-83-8 | **.19** | MEDIUM |
| 1-PENTANOL | Amyl Alcohol | Alcohols | | 71-41-0 | **.15** | LOW |
| DIACETONE ALCOHOL | | Ketones | 133°F | 123-42-2 | **.12** | LOW |
| 2-BUTOXYETHANOL | Butyl Cellosolve | Glycol Ethers | 154°F | 111-76-2 | **.07** | LOW |
| CYCLOHEXANOL | | Alcohols | 111°F | 108-93-0 | **.05** | LOW |
| AROMATIC-150 | SC#150 | Aromatic Hydrocarbons | 149°F | | **.004** | HIGH |
| AROMATIC-200 | | Aromatic Hydrocarbons | 203°F | | **.003** | HIGH |

FASTER ⇑ SLOWER ⇓

***** CAS Number: Chemical Abstract Service Number.
****** Electrical Resistance using the ITW Ransburg Meter.
******* Solvent Base Configuration Only.
**†** Information Obtained From: http://solvdb.ncms.org
**††** The lowest temperature at which a volatile fluid will ignite.
***Evaporation Rate is Based Upon Butyl Acetate Having a Rate of 1.0***

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**NOTE:** Chart provides resistance and control information that we feel is necessary when using ITW Automotive Finishing equipment.

## *VISCOSITY CONVERSION CHART*

| Poise | Centipoise | DuPont Parlin 7 | DuPont Parlin 10 | Fisher 1 | Fisher 2 | Ford Cup 3 | Ford Cup 4 | Gardner - Holdt Bubble | Gardner - Lithographic | Krebs Unit KU | Saybolt Universal SSU | Zahn 1 | Zahn 2 | Zahn 3 | Zahn 4 | Zahn 5 | Sears Craftsman Cup | Din Cup 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| .1 | 10 | 27 | 11 | 20 | | | 5 | A-4 | | | 60 | 30 | 16 | | | | | 10 |
| .15 | 15 | 30 | 12 | 25 | | | 8 | A-3 | | | 80 | 34 | 17 | | | | | 11 |
| .2 | 20 | 32 | 13 | 30 | 15 | 12 | 10 | | | | 100 | 37 | 18 | | | | | 12 |
| .25 | 25 | 37 | 14 | 35 | 17 | 15 | 12 | A-2 | | | 130 | 41 | 19 | | | | | 13 |
| .3 | 30 | 43 | 15 | 39 | 18 | 19 | 14 | A-1 | | | 160 | 44 | 20 | | | | | 14 |
| .4 | 40 | 50 | 16 | 50 | 21 | 25 | 18 | A | | | 210 | 52 | 22 | | | | 19 | 15 |
| .5 | 50 | 57 | 17 | | 24 | 29 | 22 | | | 30 | 260 | 60 | 24 | | | | 20 | 16 |
| .6 | 60 | 64 | 18 | | 29 | 33 | 25 | B | | 33 | 320 | 68 | 27 | | | | 21 | 18 |
| .7 | 70 | | 20 | | 33 | 36 | 28 | | | 35 | 370 | | 30 | | | | 23 | 21 |
| .8 | 80 | | 22 | | 39 | 41 | 31 | C | | 37 | 430 | | 34 | | | | 24 | 23 |
| .9 | 90 | | 23 | | 44 | 45 | 32 | | | 38 | 480 | | 37 | 10 | | | 26 | 25 |
| 1.0 | 100 | | 25 | | 50 | 50 | 34 | D | | 40 | 530 | | 41 | 12 | 10 | | 27 | 27 |
| 1.2 | 120 | | 30 | | 62 | 58 | 41 | E | | 43 | 580 | | 49 | 14 | 11 | | 31 | 31 |
| 1.4 | 140 | | 32 | | | 66 | 45 | F | | 46 | 690 | | 58 | 16 | 13 | | 34 | 34 |
| 1.6 | 160 | | 37 | | | | 50 | G | | 48 | 790 | | 66 | 18 | 14 | | 38 | 38 |
| 1.8 | 180 | | 41 | | | | 54 | | 000 | 50 | 900 | | 74 | 20 | 16 | | 40 | 43 |
| 2.0 | 200 | | 45 | | | | 58 | H | | 52 | 1000 | | 82 | 23 | 17 | 10 | 44 | 46 |
| 2.2 | 220 | | | | | | 62 | I | | 54 | 1100 | | | 25 | 18 | 11 | | 51 |
| 2.4 | 240 | | | | | | 65 | J | | 56 | 1200 | | | 27 | 20 | 12 | | 55 |
| 2.6 | 260 | | | | | | 68 | | | 58 | 1280 | | | 30 | 21 | 13 | | 58 |
| 2.8 | 280 | | | | | | 70 | K | | 59 | 1380 | | | 32 | 22 | 14 | | 63 |
| 3.0 | 300 | | | | | | 74 | L | | 60 | 1475 | | | 34 | 24 | 15 | | 68 |
| 3.2 | 320 | | | | | | | M | | | 1530 | | | 36 | 25 | 16 | | 72 |
| 3.4 | 340 | | | | | | | N | | | 1630 | | | 39 | 26 | 17 | | 76 |
| 3.6 | 360 | | | | | | | O | | 62 | 1730 | | | 41 | 28 | 18 | | 82 |
| 3.8 | 380 | | | | | | | | | | 1850 | | | 43 | 29 | 19 | | 86 |
| 4.0 | 400 | | | | | | | P | | 64 | 1950 | | | 46 | 30 | 20 | | 90 |
| 4.2 | 420 | | | | | | | | | | 2050 | | | 48 | 32 | 21 | | 95 |
| 4.4 | 440 | | | | | | | Q | | | 2160 | | | 50 | 33 | 22 | | 100 |
| 4.6 | 460 | | | | | | | R | | 66 | 2270 | | | 52 | 34 | 23 | | 104 |
| 4.8 | 480 | | | | | | | | 00 | 67 | 2380 | | | 54 | 36 | 24 | | 109 |
| 5.0 | 500 | | | | | | | S | | 68 | 2480 | | | 57 | 37 | 25 | | 112 |
| 5.5 | 550 | | | | | | | T | | 69 | 2660 | | | 63 | 40 | 27 | | 124 |
| 6.0 | 600 | | | | | | | U | | 71 | 2900 | | | 68 | 44 | 30 | | 135 |
| 7.0 | 700 | | | | | | | | | 74 | 3375 | | | | 51 | 35 | | 160 |
| 8.0 | 800 | | | | | | | | 0 | 77 | 3380 | | | | 58 | 40 | | 172 |
| 9.0 | 900 | | | | | | | V | | 81 | 4300 | | | | 64 | 45 | | 195 |
| 10.0 | 1000 | | | | | | | W | | 85 | 4600 | | | | | 49 | | 218 |
| 11.0 | 1100 | | | | | | | | | 88 | 5200 | | | | | 55 | | |
| 12.0 | 1200 | | | | | | | | | 92 | 5620 | | | | | 59 | | |

## VISCOSITY CONVERSION CHART (Continued)

| Poise | Centipoise | DuPont Parlin 7 | DuPont Parlin 10 | Fisher 1 | Fisher 2 | Ford Cup 3 | Ford Cup 4 | Gardner - Holdt Bubble | Gardner - Lithographic | Krebs Unit KU | Saybolt Universal SSU | Zahn 1 | Zahn 2 | Zahn 3 | Zahn 4 | Zahn 5 | Sears Craftsman Cup | Din Cup 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13.0 | 1300 | | | | | | | X | | 95 | 6100 | | | | | 64 | | |
| 14.0 | 1400 | | | | | | | | 1 | 96 | 6480 | | | | | | | |
| 15.0 | 1500 | | | | | | | | | 98 | 7000 | | | | | | | |
| 16.0 | 1600 | | | | | | | | | 100 | 7500 | | | | | | | |
| 17.0 | 1700 | | | | | | | | | 101 | 8000 | | | | | | | |
| 18.0 | 1800 | | | | | | | Y | | | 8500 | | | | | | | |
| 19.0 | 1900 | | | | | | | | | | 9000 | | | | | | | |
| 20.0 | 2000 | | | | | | | | | 103 | 9400 | | | | | | | |
| 21.0 | 2100 | | | | | | | | | | 9850 | | | | | | | |
| 22.0 | 2200 | | | | | | | | | | 10300 | | | | | | | |
| 23.0 | 2300 | | | | | | | Z | 2 | 105 | 10750 | | | | | | | |
| 24.0 | 2400 | | | | | | | | | 109 | 11200 | | | | | | | |
| 25.0 | 2500 | | | | | | | Z-1 | | 114 | 11600 | | | | | | | |
| 30.0 | 3000 | | | | | | | | | 121 | 14500 | | | | | | | |
| 35.0 | 3500 | | | | | | | Z-2 | 3 | 129 | 16500 | | | | | | | |
| 40.0 | 4000 | | | | | | | | | 133 | 18500 | | | | | | | |
| 45.0 | 4500 | | | | | | | Z-3 | | 136 | 21000 | | | | | | | |
| 50.0 | 5000 | | | | | | | | | | 23500 | | | | | | | |
| 55.0 | 5500 | | | | | | | | | | 26000 | | | | | | | |
| 60.0 | 6000 | | | | | | | Z-4 | 4 | | 2800 | | | | | | | |
| 65.0 | 6500 | | | | | | | | | | 30000 | | | | | | | |
| 70.0 | 7000 | | | | | | | | | | 32500 | | | | | | | |
| 75.0 | 7500 | | | | | | | | | | 35000 | | | | | | | |
| 80.0 | 8000 | | | | | | | | | | 37000 | | | | | | | |
| 85.0 | 8500 | | | | | | | | | | 39500 | | | | | | | |
| 90.0 | 9000 | | | | | | | | | | 41000 | | | | | | | |
| 95.0 | 9500 | | | | | | | | | | 43000 | | | | | | | |
| 100.0 | 10000 | | | | | | | Z-5 | 5 | | 46500 | | | | | | | |
| 110.0 | 11000 | | | | | | | | | | 51000 | | | | | | | |
| 120.0 | 12000 | | | | | | | | | | 55005 | | | | | | | |
| 130.0 | 13000 | | | | | | | | | | 60000 | | | | | | | |
| 140.0 | 14000 | | | | | | | | | | 65000 | | | | | | | |
| 150.0 | 15000 | | | | | | | Z-6 | | | 67500 | | | | | | | |
| 160.0 | 16000 | | | | | | | | | | 74000 | | | | | | | |
| 170.0 | 17000 | | | | | | | | | | 83500 | | | | | | | |
| 180.0 | 18000 | | | | | | | | | | 83500 | | | | | | | |
| 190.0 | 19000 | | | | | | | | | | 88000 | | | | | | | |
| 200.0 | 20000 | | | | | | | | | | 93000 | | | | | | | |
| 300.0 | 30000 | | | | | | | | | | 140000 | | | | | | | |

**Note:** All viscosity comparisons are as accurate as possible with existing information. Comparisons are made with a material having a specific gravity of 1.0.

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## VOLUMETRIC CONTENT OF HOSE OR TUBE (English Units)

| I.D. (inches) | cc/ft. | Cross Seaction (sq. in.) | Length | | | | |
|---|---|---|---|---|---|---|---|
| | | | 5ft. (60") | 10ft. (120") | 15ft. (180") | 25ft. (300") | 50ft. (600") |
| 1/8 | 2.4 | .012 | .003 gal. .4 fl. oz. | .006 gal. .8 fl. oz. | .010 gal. 1.2 fl. oz. | .016 gal. 2.0 fl. oz. | .032 gal. 4.1 fl. oz. |
| 3/16 | 5.4 | .028 | .007 gal. .9 fl. oz. | .014 gal. 1.8 fl. oz. | .022 gal. 2.8 fl. oz. | .036 gal. 4.6 fl. oz. | .072 gal. 9.2 fl. oz. |
| 1/4 | 9.7 | .049 | .013 gal. 1.6 fl. oz. | .025 gal. 3.3 fl. oz. | .038 gal. 4.9 fl. oz. | .064 gal. 8.2 fl. oz. | .127 gal. 16.3 fl. oz. |
| 5/16 | 15.1 | .077 | .020 gal. 2.5 fl. oz. | .040 gal. 5.1 fl. oz. | .060 gal. 7.6 fl. oz. | .100 gal. 12.7 fl. oz. | .199 gal. 25.5 fl. oz. |
| 3/8 | 21.7 | .110 | .029 gal. 3.7 fl. oz. | .057 gal. 7.3 fl. oz. | .086 gal. 11.0 fl. oz. | .143 gal. 18.4 fl. oz. | .287 gal. 36.7 fl. oz. |
| 1/2 | 38.6 | .196 | .051 gal. 6.5 fl. oz. | .102 gal. 13.1 fl. oz. | .153 gal. 19.6 fl. oz. | .255 gal. 32.6 fl. oz. | .510 gal. 65.3 fl. oz. |

## VOLUMETRIC CONTENT OF HOSE OR TUBE (Metric Units)

| I.D. (mm) | cc/m | Cross Section ($mm^2$) | Length | | | | |
|---|---|---|---|---|---|---|---|
| | | | 1.5m | 3.0m | 4.5m | 6.0m | 7.5m |
| 3.6 | 10.2 | 10.2 | 15.3 cc | 30.5 cc | 45.8 cc | 61.1 cc | 76.3 cc |
| 5.6 | 24.6 | 24.6 | 36.9 cc | 73.9 cc | 110.8 cc | 147.8 cc | 184.7 cc |
| 6.8 | 36.3 | 36.3 | 54.5 cc | 109.0 cc | 163.4 cc | 217.9 cc | 272.4 cc |
| 8.8 | 60.8 | 60.8 | 91.2 cc | 182.5 cc | 273.7 cc | 364.9 cc | 456.2 cc |

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DEVILBISS

# MANUAL CHANGE SUMMARY

This manual was published to supercede Service Manual **DV-AGMD-101599.8**, ***AGMD Automatic Spray Gun*****,** to make the following changes:

1. Revised "Safety" section - removed sections not pertaining to the AGMD High Performance Automatic Spray Gun.

2. Revised "Specifications" in the "Introduction" section - removed Baffle, Air Cap, and Air Cap Retaining Ring specifications.

3. Revised "AGMD High Performance Automatic Spray Gun Model Identification (AGMD-514-U-797C-FF)" in the "Introduction" section.

4. Revised "AGMD-245-1 Intermediate Plate Assembly Parts List" in the "Parts Identification" section - Item 7 description.

5. Added "Accessories and Figures" in the "Parts Identification" section.

6. Added "Warranty Policies" for ITW Industrial Finishing.

7. Added "Contact Information" on the "Back Cover" for ITW Industrial Finishing and ITW Automotive Refinishing.

**Service Manual Price: $30.00 (U.S.)**

**DeVilbiss Worldwide Sales and Service Listing - www.devilbiss.com**

**Technical/Service Assistance**

| | | |
|---|---|---|
| ITW Automotive Finishing | Telephone: 800/ 626-3565 | Fax: 419/ 470-2040 |
| ITW Automotive Refinishing | Telephone: 800/445-3988 | Fax: 800/445-6643 |
| ITW Industrial Finishing | Telephone: 800/ 992-4657 | Fax: 800/ 246-5732 |
| ITW Ransburg | Telephone: 800/ 233-3366 | Fax: 419/ 470-2071 |

**Technical Support Representative will direct you to the appropriate telephone number for ordering Spare Parts.**

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Models and specifications subject to change without notice.

Form No. DV-AGMD-101599.9
Litho in U.S.A.
05/06